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AMSAT NEWS SERVICE
ANS-073

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-073 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 073.01
>From AMSAT HQ KENSINGTON, MD.
March 13, 2016
To All RADIO AMATEURS
BID: $ANS-073.01

ARISS Celebrates School Contact #1000!

March 10, 2016: Today the Amateur Radio on the International Space Station team (ARISS team) proudly celebrated its 1000th school radio contact!

The very first ARISS contact took place in 2000, and Astronaut Tim Kopra, amateur call sign KE5UDN, on the International Space Station (ISS) did the honors for today’s 1000th link-up to the University of North Dakota. Kopra spoke in real time to excited scholars in Grand Forks at the event organized by the North Dakota Space Grant Consortium (NDSGC). An additional program milestone—this was the first amateur radio contact with the ISS that has been hosted in North Dakota.

During the 10-minute ARISS contact Astronaut Kopra answered questions formulated by 20 different pupils in kindergarten all the way up to graduate school. A member of the winning 10th grade team

from the Space Grant's high altitude balloon competition last fall was awarded one of the slots to interview Kopra.

An ARISS event is more than the amateur radio contact, and in this case the NDSGC team that included college student volunteers made multiple visits to pupils in the second through fifth grades at Emerado Elementary (Emerado, ND); Highland Elementary (Crookston, MN); Century Elementary (Grafton, ND); Century Elementary (Grand Forks, ND); and Discover Elementary (Grand Forks, ND). The university teams led the young students in hands-on activities and learning about aerospace, priming the youth for the interview with Kopra. The students, many from smaller rural communities, built and launched rockets, crafted and tested parachutes similar to those on NASA's Orion capsule, and designed and tested neutral buoyant objects.

Students in today's audience for the 1000th contact numbered 500. TV and newspaper reporters captured the action; the university media team filmed it, and live-streaming was handled by John Spasojevich, amateur radio call sign AG9D.

One student asked Tim, "What advice would you give to students, such as myself, who wish to work for NASA one day?" Tim advised: "Study very hard and work hard in school because if you do well in school you'll learn a lot and it's like money in the bank for you and your future career." A UND staff member said, "Experiential learning has proven to be the most effective method of knowledge retention, so this [ARISS] experience would grant them [students] the skills necessary to be successful individuals in their future careers. The problem-solving, creativity, and perseverance required by radio communications are cross-disciplinary skills that students can utilize as they enter STEM fields and careers, enhancing the NASA-relevant workforce of North Dakota."

Frank Bauer, International Chairman for ARISS congratulated the ARISS team on this noteworthy accomplishment:
"With the outstanding support of NASA and the International Space Agencies participating in ISS, the ISS on-orbit crew members encompassing all 48 expeditions and the hundreds of ARISS volunteers world-wide, the ARISS team has reached a tremendous milestone: 1000 ARISS contacts between schools on the ground and the ISS crews on-orbit. Since our first contact in December 2000 to today's contact in North Dakota, hundreds of thousands of students have participated in hands-on STEM learning that ARISS affords and many millions from the general public have witnessed Human Spaceflight in action through an ARISS contact. My congratulations to the ARISS international team and our ARISS stakeholders and sponsors on this phenomenal accomplishment!"

The NASA ISS Program Office produced several videos to celebrate the achievement of ARISS contact #1000, and the first three are online at:

Amateur Radio on the International Space Station (ARISS)
https://www.youtube.com/watch?v=bTOiiBd2dCo&feature=em-uploademail

ARISS: 1,000 Calls and Counting
https://www.youtube.com/watch?v=DwtLkTpgNMM&feature=em-uploademail

ARISS: Talking to Astronauts
https://youtu.be/Z-yHD9lVbH8

ARISS telebridge station W6SRJ operators Tim Bosma, W6MU, and Don Dalby, KE6UAY, in Santa Rosa, California, skillfully supported the North Dakota ham radio linkup as the ISS passed overhead, relaying astronaut Tim Kopra's radio signal to the students. Charlie Sufana,

AJ9N, the ARISS Mentor from the Radio Amateur Satellite Corporation (AMSAT) and the lead operator for ARISS Contact #1, guided the UND Dakota Student Amateur Radio Association and the FORX Amateur Radio Club in all aspects of the ARISS contact.

Congratulations go to the entire ARISS team on its #1000 successful amateur radio contact with ISS astronauts and cosmonauts!

About ARISS:
Amateur Radio on the International Space Station (ARISS) is a cooperative venture of international amateur radio societies and the space agencies that support the International Space Station (ISS). In the United States, sponsors are the Radio Amateur Satellite Corporation (AMSAT), the American Radio Relay League (ARRL), the Center for the Advancement of Science in Space (CASIS) and the National Aeronautics and Space Administration (NASA). The primary goal of ARISS is to promote exploration of science, technology, engineering, and mathematics (STEM) topics by organizing scheduled contacts via amateur radio between crew members aboard the ISS and students in classrooms or informal education venues. With the help of experienced amateur radio volunteers, ISS crews speak directly with large audiences in a variety of public forums. Before and during these radio contacts, students, teachers, parents, and communities learn about space, space technologies, and amateur radio.

For more information, see www.ariss.org, www.amsat.org, and www.arrl.org.

Join us on Facebook: Amateur Radio on the ISS (ARISS)
Follow us on Twitter: ARISS_status

[ANS thanks ARISS for the above information]

AMSAT/TAPR Banquet at the Dayton Hamvention

The tenth annual joint AMSAT/TAPR Banquet will be held on Friday evening, May 20th. This dinner is one of the main AMSAT activities during the Hamvention. Tickets ($35 each) may be purchased from the AMSAT store at www.amsat.org. The banquet ticket purchase deadline is Tuesday, May 17th.

The Banquet will take place at the Kohler Presidential Banquet Center, 4572 Presidential Way, Kettering, OH 45429 (just south of Dayton). Doors open at 6:30 p.m. for a cash bar with the buffet dinner served at 7:00 p.m.

AMSAT and TAPR alternate the task of providing a speaker for the banquet. It is AMSAT¹s responsibility this year.

Michelle Thompson, W5NYV, will present "It¹s just software, right?" She will survey the AMSAT Ground Terminal: Who, what, when, where, why, and how we¹re designing open source radio solutions for the next generation of AMSAT payloads.

Michelle is AMSAT¹s Team Leader for the design and execution of the AMSAT Ground Terminal. The goal is to create a ³5 and Dime² (5 and 10 GHz) digital SDR transceiver that will support both voice and data modes, for both general QSOs and emergency communication, for the Phase 4B satellite and for future AMSAT projects. This is an effort to design an inexpensive ground terminal for amateurs that would cost

tens of thousands of dollars commercially, for as much under $1,000 as we can get it.

A true renaissance woman, in addition to being an engineer and a licensed amateur radio operator, Michelle has worked for Qualcomm, attends Burning Man, and is a longtime DEFCON participant. She is also the lead for Organ Donor (an AI pipe organ). Her Phase 4B Weekly Ground Engineering Reports are fascinating reading.

Seating is limited to the number of meals we reserve with the Kohler caterers based on the number of tickets sold by the deadline. Tickets purchased online may be collected at the Books, Shirts & Memberships corner of the AMSAT booth (445-446).

[ANS thanks Steve N9IP and the AMSAT Office for the above information]

Fox-1Cliff and Fox-1D Waiting for delivery to Spaceflight Industries

Fox-1Cliff and Fox-1D successfully finished environmental testing on February 8 and are now ready and waiting for delivery to Spaceflight Industries for integration into their Sherpa payload dispenser which will be making its maiden flight. Launch is on target to occur in in the first half of 2016 on a SpaceX Falcon 9.

The CubeSats will be kept in a clean condition sealed in anti-static bags, opened occasionally to charge the batteries so that they are fully topped off for delivery.

Launched into a sun synchronous orbit, Fox-1Cliff and Fox-1D will both carry an FM repeater as Fox-1A (AO-85) has, as well as a camera experiment built by students at Virginia Tech which will take images of Earth for downlink in the high speed Data Mode. Fox-1Cliff will also contain a radiation experiment from Vanderbilt University ISDE like that in AO-85, and Fox-1D will host the University of Iowa HERCI (High Energy Radiation CubeSat Instrument) experiment to map the Van Allen radiation belts.

With Fox-1Cliff and Fox-1D completed, the Fox Engineering Team is focusing on RadFxSat/Fox-1B which is currently set to launch in January, 2017.

[ANS thanks Jerry N0JY for the above information]

The CBS "This Morning" show reports on STMSat-1

The CBS This Morning show reports on an amateur radio SSTV satellite built by elementary students which is to be deployed in space in the coming days

Astronauts on the International Space Station have conducted hundreds of experiments and launched many satellites, but now they are set to deploy a satellite that elementary age students at a school in Virginia built. Their satellite hitched a ride on a NASA rocket late last year, and it will be released into space in the next few days. Mark Albert reports.

Watch the CBS report at
http://tinyurl.com/ANS073-STMSat-on-CBS

For the latest deployment date check the STMSat-1 Twitter account
https://twitter.com/STMSAT11

Deployment Update
In a tweet from STMSAT-1 on Saturday:
"Looks like I will be a houseguest just a bit longer. With 4 launches in the next 20 days. astronauts are quite busy! Try again. 3 weeks."

[ANS thanks CBS and Southgate ARN for the above information]

Supporting Disaster Communications from Space

Conventional lines of communication can be impacted after a disaster. This we know. Phone lines can go down, cell service can be overrun with calls, texts, and emails and it can be difficult for survivors as well as first responders to get in touch. This isn't a far-fetched scenario or intellectual exercise. It's a reality we've seen happen over and over during disasters small and large.

Enter Amateur Radio—or what those involved in the hobby refer to as "ham radio."

Amateur radio enthusiasts—or "hams" as they're often called—often step in during emergencies to help bridge communication gaps between first responders to keep people safe when smartphones, cell towers, and internet technologies we rely on every day go down. Volunteer hams also serve as a valuable source of information during the initial states of an emergency. Often, hams provide this public service in association with volunteer groups like Community Emergency Response Teams, who are always ready to spring into action quickly and effectively.1

We owe it to these volunteers to do everything we can to support their work to help communities bounce back when disaster strikes. That's why we've partnered with the American Radio Relay League and researchers from Virginia Tech's Ted and Karyn Hume Center for National Security and Technology in Blacksburg, Virginia—one of the leaders in amateur radio technology—to develop a new communications satellite that will help amateur radio operators transmit radio signals across the United States 24 hours a day, 365 days a year. After all, disasters can happen any place and any time.

With this new satellite, scheduled to launch in 2017, Hams involved in supporting disaster communications will have a more reliable connection and a new level of capability in their communications.2 Right now, radio signals used by amateurs must often be bounced off the ionosphere to accommodate communication over long distances. Unfortunately, this type of radio propagation isn't reliable because signal reach and quality can be impacted or even halted by space weather events like solar flares and geomagnetic storms.2 This satellite is unique because it will provide another layer of support for emergency services- by providing a dedicated communications hub for hams orbiting above the U.S. in geosynchronous orbit every day. It will help emergency managers deployed to disasters support long-term communications for first responders on the ground—and become another invaluable tool at their disposal.2

Amateur radio operators have come to the rescue on more than one occasion—like during Hurricane Sandy—when landlines and cell phones were left out of commission throughout New York and New Jersey.

Hams also made a difference in 2013, when Colorado was hit with historic flooding. As floodwaters ravaged areas across the state, they threatened a wastewater plant that served over 80,000 people. Volunteers from the Amateur Radio Emergency Service—the American Radio Relay League's disaster communications arm—leapt into action, creating a network to monitor the situation and collect data. As a result, they were able to take remote control of the facility and helped prevent any wastewater from spilling out with the floods.3

This new partnership with hams will help make our communities more resilient, and we look forward to a successful launch.

FEMA Editor's Note: Jessica Stapf contributed research to this post.

Sources:

Amateur Radio Relay League Page: Amateur Radio Emergency Communication
http://www.arrl.org/amateur-radio-emergency-communication

Virginia Tech Press Release: "First amateur radio in geosynchronous orbit will aid disaster communications."
http://tinyurl.com/ANS073-VTGeo

Case Study: Amateur Radio Volunteers Protect Community Water Supply
http://tinyurl.com/ANS073-CaseStudy

[ANS thanks Rafael Lemaitre and FEMA for the above information]

Proposal Window for Scheduled US Contacts is Open

Message to US Educators
Amateur Radio on the International Space Station
Contact Opportunity

Call for Proposals
Proposal Window February 15 – April 15, 2016

The Amateur Radio on the International Space Station (ARISS) Program is seeking formal and informal education institutions and organizations, individually or working together, to host an Amateur Radio contact with a crew member on board the ISS. ARISS anticipates that the contact would be held between January 1, 2017 and June 30, 2017. Crew scheduling and ISS orbits will determine the exact contact dates. To maximize these radio contact opportunities, ARISS is looking for organizations that will draw large numbers of participants and integrate the contact into a well-developed education plan.

The deadline to submit a proposal is April 15, 2016. Proposal information and documents can be found at www.arrl.org/hosting-an-ariss-contact.

The Opportunity
Crew members aboard the International Space Station will participate in scheduled Amateur Radio contacts. These radio contacts are

approximately 10 minutes in length and allow students and educators to interact with the astronauts through a question-and-answer session.

An ARISS contact is a voice-only communication opportunity via Amateur Radio between astronauts and cosmonauts aboard the space station and classrooms and communities. ARISS contacts afford education audiences the opportunity to learn firsthand from astronauts what it is like to live and work in space and to learn about space research conducted on the ISS. Students also will have an opportunity to learn about satellite communication, wireless technology, and radio science. Because of the nature of human spaceflight and the complexity of scheduling activities aboard the ISS, organizations must demonstrate flexibility to accommodate changes in contact dates and times.

Amateur Radio organizations around the world, NASA, and space agencies in Russia, Canada, Japan and Europe sponsor this educational opportunity by providing the equipment and operational support to enable direct communication between crew on the ISS and students around the world via Amateur Radio. In the US, the program is managed by AMSAT (Radio Amateur Satellite Corporation) and ARRL (American Radio Relay League) in partnership with NASA.

More Information
Interested parties can find more information about the program at www.ariss.org and www.arrl.org/ARISS.

For proposal information and more details such as expectations, proposal guidelines and proposal form, and dates and times of Information Sessions go to http://www.arrl.org/hosting-an-ariss-contact.

Please direct any questions to ariss(a)arrl.org.

[ANS thanks ARISS for the above information]

Application Window Open for ARISS Europe Region

Schools and Youth organizations in the ARISS-Europe Region (Europe, Africa and Middle East) interested in setting up an ARISS radio contact with an astronaut onboard the International Space Station are invited to submit an application and an educational project. The application submission window will be open February 1 to April 30, 2016, for space conversations that will tentatively be scheduled in the period extending from February to June 2017.

Please see http://www.ariss-eu.org/school-contacts for details and an application.

[ANS thanks ARISS for the above information]

ARISS News

+ A Successful contact was made between Slovanské Gymnázium Olomouc, Olomouc, Moravia, Czech Republic and Astronaut Timothy Peake KG5BVI

using Callsign OR4ISS. The contact began 2016-03-08 08:22 UTC and lasted about nine and a half minutes. Contact was direct via OK2KYJ. ARISS Mentor was Armand SP3QFE. This was the 998th ARISS contact.

+ A Successful contact was made between Atlanta Science Festival, Atlanta, Georgia and Astronaut Tim Kopra KE5UDN using Callsign NA1SS. The contact began 2016-03-08 16:11 UTC and lasted about nine and a half minutes. Contact was telebridge] via K6DUE.
ARISS Mentor was John K4SQC. This was the 999th ARISS contact.

+ A Successful contact was made between North Dakota Space Grant Consortium (NDSGC), Grand Forks, North Dakota, USA and Astronaut Tim Kopra KE5UDN using Callsign NA1SS. The contact began 2016-03-10 19:07:08 UTC and lasted about nine and a half minutes. Contact was telebridge via W6SRJ.
ARISS Mentor was Charlie AJ9N. This was the 1000th ARISS contact.

Editor's Note:
Last week the Mentors for the successful ARISS contacts were misreported. AA8EM assumes full responsibility for the error. Below are the correct mentors for contacts #995, #996 and #997.

The mentor for contact #995 on 2/29/2016 between Tim Kopra KE5UDN and Gesamtschule Leverkusen Schlebusch, Leverkusen, Germany, was Peter IN3GHZ.

The Mentor for contact #996 on 3/1/2016 between Tim Kopra KE5UDN and National Urban Alliance for Effective Education (NUA), Syosset, New York, was Dave AA4KN.

The mentor for contact #997 on 3/5/2016 between Timothy Peake KG5BVI and Powys Secondary Schools, Mid Wales, UK was Ciaran MØXTD.

Upcoming ARISS Contact Schedule

Booker T. Washington Senior High, Miami, Florida, direct via W4SVI
The ISS callsign is presently scheduled to be NA1SS
The scheduled astronaut is Timothy Peake KG5BVI
Contact is a go for: Mon 2016-03-14 15:48:48 UTC

Walter Jackson Elementary, Decatur, Alabama, direct via N8DEU
The ISS callsign is presently scheduled to be NA1SS
The scheduled astronaut is Tim Kopra KE5UDN
Contact is a go for: Thu 2016-03-17 14:46:07 UTC

[ANS thanks ARISS, Charlie AJ9N and David AA4KN for the above information]

Satellite Shorts From All Over

+ Patrick Stoodard WD9EWK will be part of the booth for the University of Arizona's radio club (K7UAZ) for this weekend's ScienceCity science fair, on the University of Arizona campus in Tucson AZ. This is a two-day event, on Saturday and Sunday (12 and 13 March 2016). The event will be open from 9.30am to 5.30pm (1630 to 0030 UTC) each day. More information about the ScienceCity event is available at:
http://sciencecity.arizona.edu/

[ANS thanks Patrick WD6EWK for the above information]

+ Space Station 360: Zarya
  Explore the Space Station’s first module with your mobile phone or
  virtual-reality headset.

  http://tinyurl.com/ANS073-SpaceStationTour

  [ANS thanks the European Space Agency for the above information]

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In addition to regular membership, AMSAT offers membership in the
President's Club. Members of the President's Club, as sustaining
donors to AMSAT Project Funds, will be eligible to receive addi-
tional benefits. Application forms are available from the AMSAT
Office.

Primary and secondary school students are eligible for membership
at one-half the standard yearly rate. Post-secondary school students
enrolled in at least half time status shall be eligible for the stu-
dent rate for a maximum of 6 post-secondary years in this status.
Contact Martha at the AMSAT Office for additional student membership
information.

73,
This week's ANS Editor,
EMike McCardel, AA8EM (Former KC8YLD)
kc8yld at amsat dot org